NASA
Launch Services Program

New Frontiers 3 AO Pre-Proposal Conference
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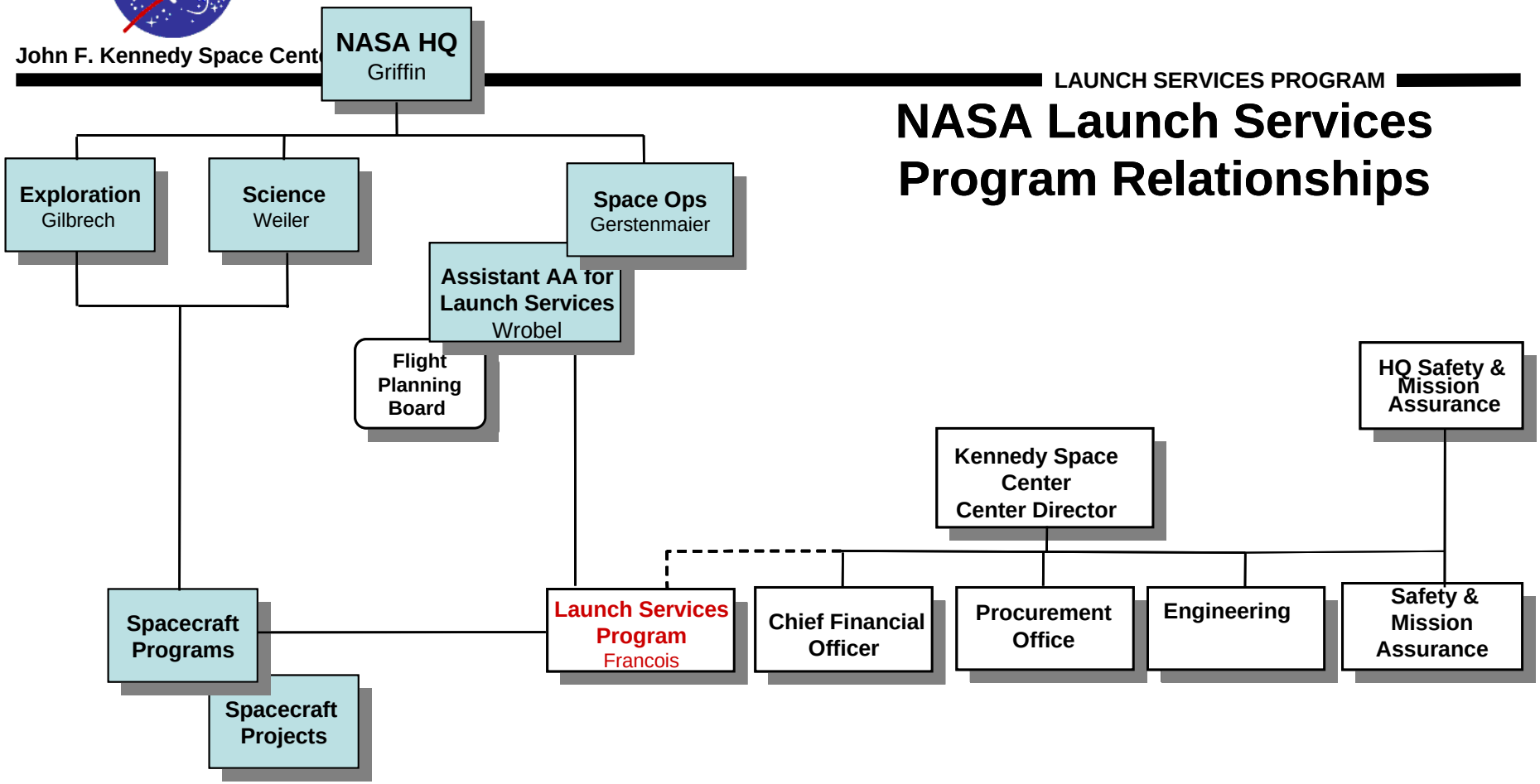
NASA Launch Services Program Relationships



Interfaces to other NASA Centers

- GRC Technical Support
- SSC Propulsion Support
- GSFC Spacecraft Projects
- MSFC Technical Support
- JPL Spacecraft Projects
- ARC Spacecraft Projects

Launch Services Program

The Launch Services Program provides management of the launch service, technical oversight of the launch vehicle production/test, coordinates and approves mission-specific integration activities, provides mission unique launch vehicle hardware/software development, provides payload-processing accommodations, and manages the launch campaign/countdown.

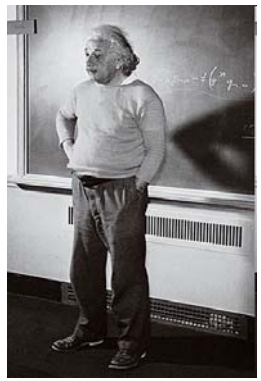
The Big Picture

Commercial Launch Service Providers

Launch Services Contract

Launch Services Program

NASA Charter



YOU

Spacecraft Contractor

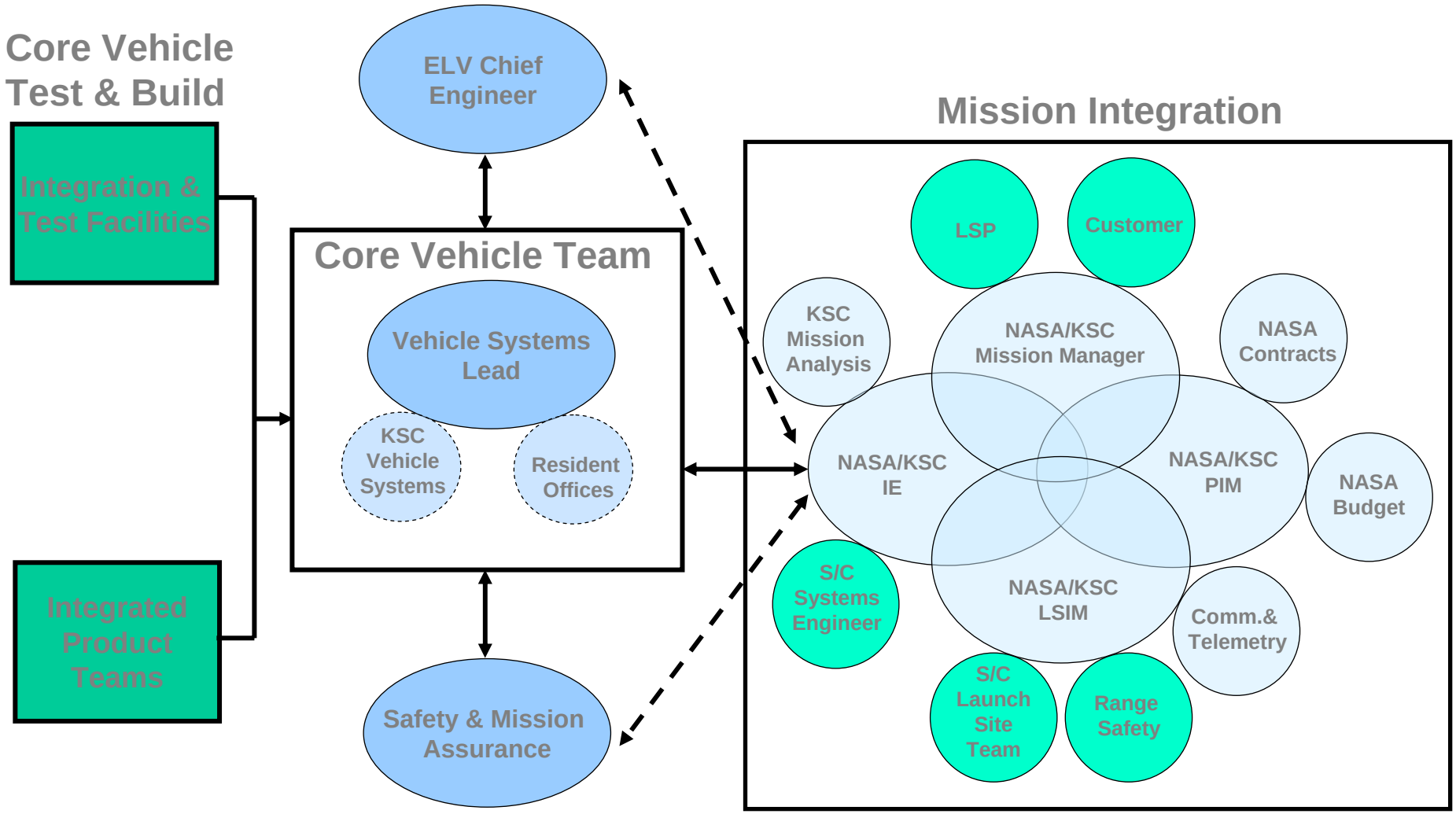
S/C Contract

NASA Spacecraft Center
- **GSFC**
- **JPL**
- **GRC**
- **MSFC**
- **Etc.**

LSP Functional Structure

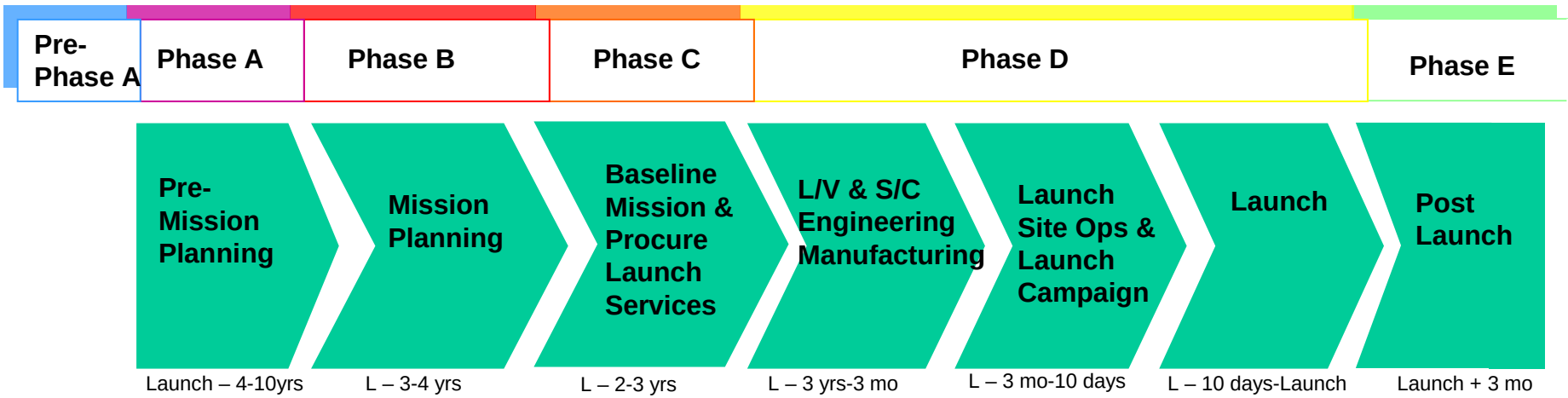
- LSP procures/provides a Launch Service
  - Its more than the basic launch vehicle
  - We don't buy a tail number
  - This is a commercial FFP procurement with additional insight and oversight
- To enable this, LSP has two functional sides
  - Mission integration
    - » Mission Integration team assigned to each mission
    - » Manages mission specific procurement, integration, and analysis
    - » Includes launch site integration and processing
  - Fleet management
    - » Personnel assigned to each contracted rocket
    - » Includes resident offices within the production facilities of all active providers
    - » We watch the production and performance of entire fleet – we certify the manufacture's production line, not just a particular unit (tail number)
    - » We have a say in any change/upgrade/anomaly
    - » Big stick – no-go for launch
- Interface with Safety and Mission Assurance
  - Safety
  - Quality

Technical Information flow into the MIT



Ground Rules

- Any acquisition of a non-contributed domestic expendable launch vehicle proposed for this AO will be procured and managed by the NASA/Launch Services Program (LSP) via the NASA Launch Services (NLS) contract.
- The LSP will competitively select a launch service provider for these missions based on customer requirements and NASA Flight Planning Board (FPB) approval.



Spacecraft reviews shown in red.

Available Vehicles

- Assumption of a specific launch vehicle configuration as part of this AO proposal will not guarantee that the proposed LV configuration will be selected for award of a launch service competitive procurement
  - Firm technical rationale for sole source justification is required in the proposal, and NASA would have to obtain appropriate approvals.
- The Agency policy, NPD 8610.7, “Risk Mitigation Policy for NASA-Owned and/or NASA-Sponsored Payloads/Mission” has been modified so new providers can compete for low risk NASA missions.

Available Vehicles - Continued

- Most likely candidate vehicles for New Frontiers 2 that are on the NLS contract are
  - Atlas V
  - Delta IV
  - Falcon 9
  - Others are available…just smaller…
- The performance available from these rockets are

Case	Performance Range (kg)
C3 = 10 km^2 / sec^2	
Low with 4-meter fairing	0 – 2840 (4-meter fairing)
Low with 5-meter fairing	0 – 2150 (5-meter fairing)
Medium	2150 - 3100
High	4345 - 5300

Options

- **A PI may choose to fly an RHU as part of his S/C**
  - **LSP provides launch approval and radiological source services as required**
  - **There is an additional charge for this (see AO for price details)**
- **Most other typical rocket features would be considered within the price bounds already covered by HQ**

NEPA and Launch Approval Information

NEPA & Launch Approval Process

- **NASA HQ (SMD) and the spacecraft provider are responsible for acquiring NEPA & Launch Approval**

  - **NEPA – National Environmental Policy Act, 1969**

  - **Presidential Directive/National Security Council Memorandum #25 (PD/NSC-25) (Carter Administration, 1977)**

    - **Also known as Launch Approval**

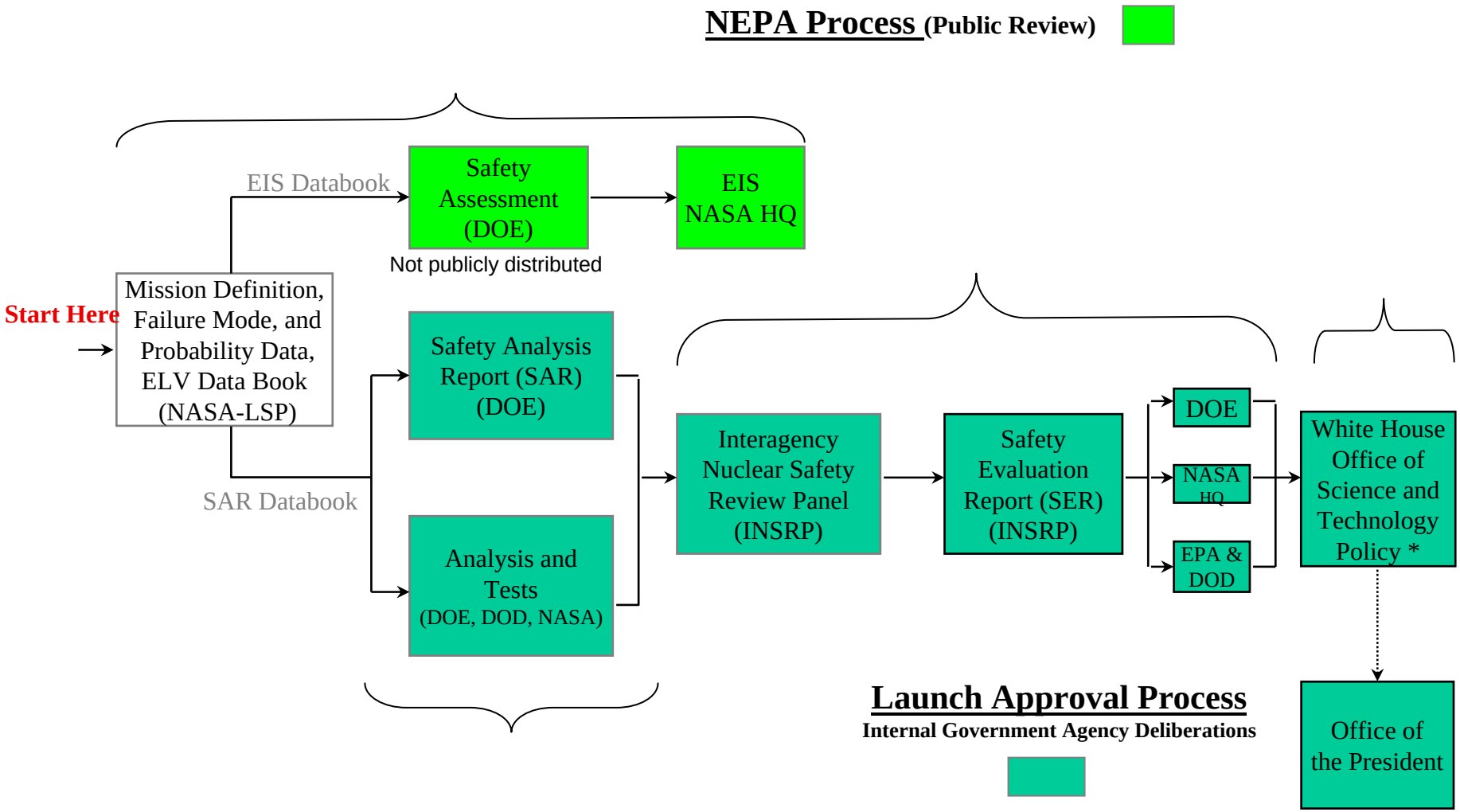
NEPA & Launch Approval Processes

- **Two Separate Processes (NEPA and Launch Approval)**
  - **National Environmental Policy Act (NEPA)**
    - » **Purpose: Enacted in 1969 to insure consideration of potential environmental aspects/impacts (and reasonable alternatives) in the Record of Decision regarding Program baselines**
    - » **Opens agency decision making policy to the public**
    - » **Also known as Environmental Impact Statement (EIS) Process**
  - **Presidential Directive/National Security Council Memorandum #25 (PD/NSC-25) (Carter Administration, 1977)**
    - » **Purpose: Directive required risk associated with launching nuclear spacecraft be quantified; DOE Safety Analysis Report (SAR)**
    - » **Raised decision-making process to the Presidential level**
    - » **Also known as Launch Approval Process**

NEPA & Launch Approval Process Flowchart

John F. Kennedy Space Center

LAUNCH SERVICES PROGRAM



* Dir. of OSTP can make decision or defer matter to President

Typical NEPA & Launch Approval Process Durations

	LV that already has a databook	LV that does not have a databook	Multiple LVs without databooks
NEPA	**1 years**	**2 years**	**2.5 years**
DOE Risk Ana	**1.5 years**	**1.5 year**	**2 years**
INSRP SER	**1 year**	**1 year**	**1 year**
OSTP / White House	**6 months**	**6 months**	**6 months**

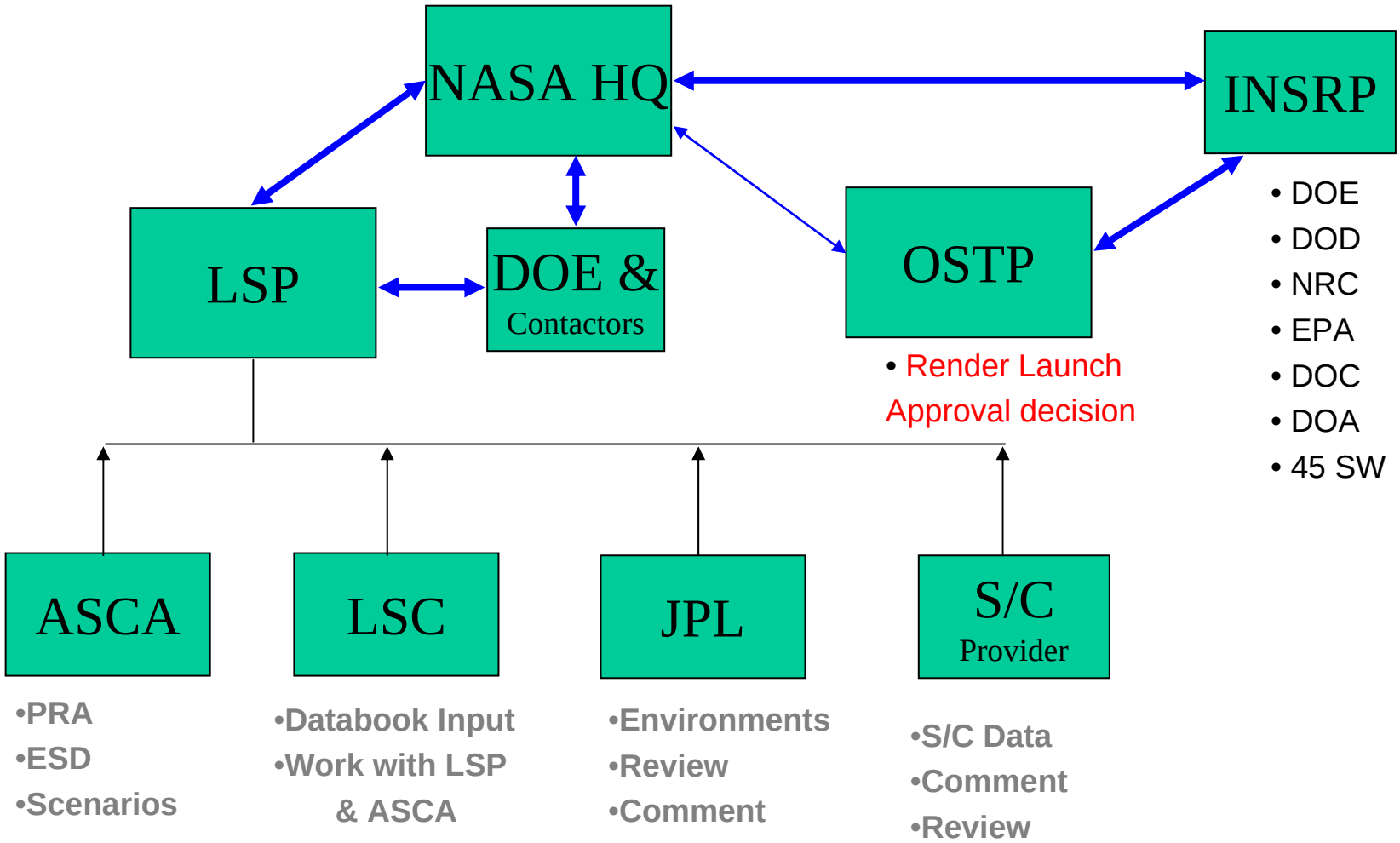
- What LV is chosen to perform the mission is critical to the length of time required to complete NEPA & Launch Approval

NEPA & Launch Approval Process

- **Launch Service Program (LSP) is responsible for:**

  - **Launch Vehicle Data Book information acquisition, development & approval**
  - **Managing launch vehicle data required for the NEPA/Launch Approval process**
  - **Generating and submitting SOWs for data required from Launch Service Contractor (LSC)**
  - **Reviewing data provided from LSC's and independent contractors**
  - **Coordinating LSC approval of data generated by NEPA & LA community**

LV Databook Information Flow



Databook Contents

- Databook:
  - Chapter 1: Introduction
  - Chapter 2: Mission Overview
  - Chapter 3: Launch Vehicle Description
  - Chapter 4: Spacecraft Description
  - Chapter 5: Launch Complex Description
  - Chapter 6: Flight Safety System
  - Chapter 7: Mission Timeline & Trajectory
  - Chapter 8: Accident Probability Analysis
  - Chapter 9: Accident Environments

Launch Service Budget

- **For New Frontiers 3, the launch service costs will be held by NASA Headquarters.**
- **The launch service includes:**
  - **The launch vehicle, engineering, analysis, and minimum performance standards and services provided by the contract.**
  - **Launch Site Processing**
  - **Range Support**
  - **Down Range Telemetry support (launch vehicle only)**
  - **Standard Mission Uniques – these are items typically necessary to customize the basic vehicle hardware to meet spacecraft driven requirements. Already budgeted for are items like Pre-ATP studies such as coupled loads and/or trajectories analysis, a GN2 or pure air purge prior to T-0 and 10,000 Class integration environment.**
  - **Budget does not include launch delays.**

Summary

- **It is the Launch Service Program's goal to ensure the highest practicable probability of mission success while managing the launch service technical capabilities, budget and schedule.**
- **Questions must be officially submitted to thomas.h.morgan@nasa.gov, however LSP will gladly respond as quickly as possible.**